

Design and construction as computer-augmented intelligence processes

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Report

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Ada: Playful Intelligent Space

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The Institute of Neuroinformatics plans to present the project "Ada: Intelligent Space" at the Neuchâtel Arteplage of the Swiss national exhibition Expo.02 (May-October 2002). Ada is an artificial creature that interacts and communicates with its visitors. The basic concepts, principles, methods, and technologies of Ada are based on the research projects of the INI and its collaborators.

Goals and aims

The aim of the Ada project is to engage the public in a discussion on the implications of technology on our society, and the anticipated shift towards adaptive and intelligent real-world machines. The two basic messages of Ada are:

Brains continuously construct their own interpretation of the world

Intelligent technologies of the future will share this property with the brain



Realization

Ada will be realized as a 250 m² space consisting of two regions: **Ada** and the **brainarium**. In **Ada**, visitors interact and communicate with the space at different levels of complexity; from simple reactions to complex games. In the **brainarium** visitors can learn about the neuromorphic principles which allow Ada to perceive, make decisions and behave.

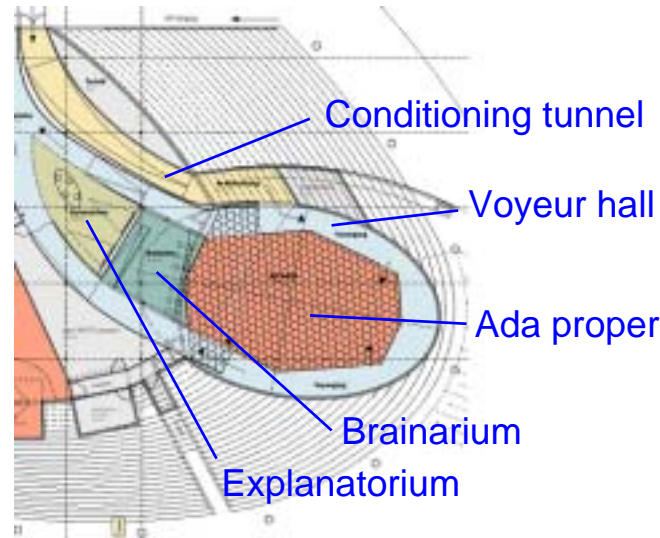
Sensors, Effectors, and Behaviors

Ada uses a large set of sensors and effectors: She will employ visual (vision matrix and gazers), tactile (load-sensing floor tiles), and microphones (fixed and directed by gazers) to detect the what, where, and how of her visitors. She can react to her visitors using patterns of light generated by floor tiles, moving lights (light fingers), and by her ability to express herself using sounds and musical compositions (RoBoser). The interactions with visitors will depend on their choices and actions. In entrance areas and regions with a high visitor density Ada will display only simple reactive behaviors while in other regions Ada will engage compliant single visitors or groups of visitors in complex games.



Neuromorphic control structures

Ada's behavioral goals are to optimize visitor flow and to engage as many visitors as possible in games. Ada will use her growing knowledge about her visitors to reach these goals. In this way Ada satisfies the classical definition of intelligence. The neuronal control structures which support the sensing, perceptual, and decision making capabilities of Ada are implemented in IQR421 and run on a network of PCs.



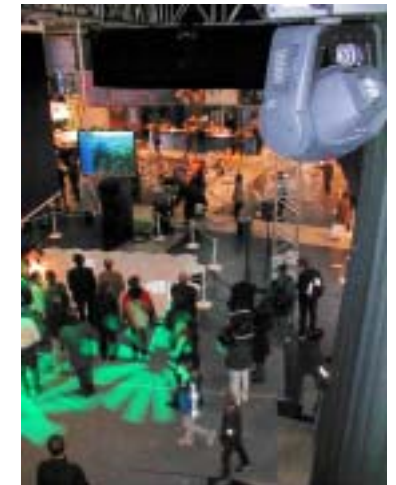
Brainarium

The brainarium provides the educational component of the project where questions regarding the operation of Ada are answered and the parallels to the functioning of the human brain are drawn.

Events

Prototypes of Ada were tested at the **Zürcher Festival des Wissens** and **Zürifäscht 2001**.

Thousands of visitors helped make clear what works and what doesn't.



www.ini.unizh.ch/~expo

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